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**BEFORE THE ARIZONA CORPORATION COMMISSION**

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ANDY TOBIN  
COMMISSIONER

BOYD DUNN  
COMMISSIONER

**IN THE MATTER OF THE  
APPLICATION OF ARIZONA PUBLIC  
SERVICE COMPANY FOR A  
HEARING TO DETERMINE THE FAIR  
VALUE OF THE UTILITY PROPERTY  
OF THE COMPANY FOR  
RATEMAKING PURPOSES, TO FIX A  
JUST AND REASONABLE RATE OF  
RETURN THEREON, TO APPROVE  
RATE SCHEDULES DESIGNED TO  
DEVELOP SUCH RETURN.**

**DOCKET NO. E-01345A-16-0036**

**DOCKET NO. E-01345A-16-0123**

Arizona Corporation Commission

**DOCKETED**

FEB 3 2017

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**IN THE MATTER OF FUEL AND  
PURCHASED POWER  
PROCUREMENT AUDITS FOR  
ARIZONA PUBLIC SERVICE  
COMPANY.**

**ENERGY FREEDOM COALITION  
OF AMERICA'S NOTICE OF FILING  
DIRECT TESTIMONY (RATE  
DESIGN) OF MARK E. GARRETT**

Energy Freedom Coalition of America ("EFCA") hereby provides notice of filing the  
Direct Testimony (Rate Design) of Mark E. Garrett in the above referenced matter.

Respectfully submitted this 3<sup>rd</sup> day of February, 2017.

**Rose Law Group pc**

/s/ Court S. Rich

Court S. Rich

Attorney for Energy Freedom Coalition of America

1 **Original and 13 copies filed on**  
2 **the 3<sup>rd</sup> day of February, 2017 with:**

3 Docket Control  
4 Arizona Corporation Commission  
5 1200 W. Washington Street  
6 Phoenix, Arizona 85007

7 *I hereby certify that I have this day served a copy of the foregoing document on all parties of  
8 record in this proceeding by regular or electronic mail to:*

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**BEFORE THE ARIZONA CORPORATION COMMISSION**

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APPLICATION OF ARIZONA PUBLIC  
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**DOCKET NO. E-01345A-16-0036**

**DOCKET NO. E-01345A-16-0123**

**DIRECT TESTIMONY**

**OF**

**MARK E. GARRETT**

**RATE DESIGN ISSUES**

**ON BEHALF OF**

**ENERGY FREEDOM COALITION OF AMERICA ("EFCA")**

**January 27, 2017**

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**I. WITNESS IDENTIFICATION AND PURPOSE OF TESTIMONY**

**Q: PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

A: My name is Mark E. Garrett. My business address is 50 Penn Place, 1900 N.W. Expressway, Suite 410, Oklahoma City, Oklahoma 73118.

**Q: DID YOU PROVIDE TESTIMONY ON DECEMBER 21, 2016 IN THE REVENUE REQUIREMENT PHASE OF THESE PROCEEDINGS?**

A: Yes. A description of my qualifications and a list of the proceedings in which I have been involved were attached to that testimony.

**Q: ON WHOSE BEHALF ARE YOU APPEARING IN THESE PROCEEDINGS?**

A: I am appearing on behalf of Energy Freedom Coalition of America ("EFCA").

**Q: WHAT IS EFCA'S INTEREST IN THIS PROCEEDING?**

A: EFCA's primary interest in this phase of the proceeding is to help ensure that the rates that result from this case are *just and reasonable* rates – fair to both the Company and its customers. EFCA is also interested in helping maintain and encourage consumer choice and fair rate setting practices, particularly as it applies to the Company's solar customers and those customers who hope to power their homes and businesses with solar in the future.

**Q: WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PHASE OF THE**

1           **PROCEEDINGS?**

2    A:    The purpose of my testimony in the rate design phase is to address APS's demand  
3           ratchets in the Large General Service ("LGS") customer class.

4    **II.    DEMAND RATCHET RATES**

5    **Q:    WHAT ARE YOU RECOMMENDING WITH RESPECT TO THE COMPANY'S**  
6           **DEMAND RATCHETS IN THE LARGE GENERAL SERVICE CLASS?**

7    A:    I am recommending that the Commission reconsider APS's existing demand ratchets for  
8           LGS customers. Not only do demand ratchets discourage the efficient use of the system  
9           and have nearly the same effect on customers as increased fixed charges, but, more  
10          importantly, demand ratchets effectively eliminate storage as a viable option for large  
11          customers. If the Commission is unwilling to get rid of the APS ratchets entirely, I  
12          propose that APS be directed to provide an optional non-ratchet LGS tariff that allows  
13          customers in the rate class seeking to install storage the opportunity to do so.

14  
15          **(a)   Ratchets Discourage Efficiency and Act as an Increased Fixed Charge**

16    **Q:    WHAT IS A DEMAND RATCHET?**

17    A:    A demand ratchet is a billing mechanism by which a customer is billed based on their  
18           demand during previous billing months. In the case of APS, a ratchet is used to  
19           determine the appropriate demand billing determinate to use when assessing a  
20           customer's monthly demand charge.



1     **Q:     HOW IS APS'S EXISTING DEMAND RATCHET DESIGNED?**

2     A:     Currently, APS has an existing demand ratchet for LGS customers. APS assesses a  
3           Customer's monthly billing demand as the greatest of the following:<sup>1</sup>

4                 1. The average kW supplied during the 15- minute period (or other period as  
5                    specified by an individual customer contract) of maximum use during the month,  
6                    as determined from readings of the Company's meter or in accordance with the  
7                    Company's Service Schedule 8.

8                 2. 80% of the highest kW measured during the six (6) summer billing months  
9                    (May-October) of the twelve (12) months ending with the current month

10                3. The minimum kW specified in the agreement for service or individual  
11                  contract.

12                Option two (2) above represents the demand ratchet.

13  
14    **Q:     IS APS PROPOSING MODIFICATIONS TO THE STRUCTURE OF THIS**  
15    **RATCHET?**

16    A:     No. However, APS is proposing to maintain the current demand ratchet in its currently  
17            proposed LGS rate.

18  
19    **Q:     WHAT IS THE PURPOSE OF A DEMAND CHARGE?**

20    A:     The general argument set forth regarding demand rates is, "[i]f designed properly, a  
21            demand charge can provide customers with a price signal that accurately reflects the cost  
22            of the system that must be available to serve their individual peak load while affording

1 the Company better recovery of its fixed system costs.”<sup>2</sup> I would consider Mr. Hutchen’s  
2 definition, put forth in a separate case before the Arizona Corporation Commission, is  
3 equivalent to what Charles Miessner has expressed less directly in testimony in this APS  
4 filing. Typically, demand charges for commercial customers are intended to promote  
5 more efficient use of the utility’s distribution system by sending a price signal to  
6 customers that incentivizes reductions in demand or shifting load from high-use, peak  
7 periods into off-peak periods.

8  
9 **Q: DOES APS’S EXISTING STRUCTURE FOR DETERMINING THE BILLING**  
10 **DEMAND FOR LARGE GENERAL SERVICE CUSTOMERS PROVIDE AN**  
11 **APPROPRIATE PRICE SIGNAL THAT INCENTIVIZES EFFICIENCY?**

12 A: No. APS’s existing, and proposed, rate design does not send the appropriate signal to  
13 incentivize energy efficiency, and, therefore directly contradicts the objective of a  
14 demand charge identified by the Company in its application. To incentivize efficiency,  
15 customers should be encouraged to use the system more efficiently. APS’s structure  
16 provides no incentive for customers to reduce their demand for two primary reasons.  
17 First, assessing a customer’s monthly demand as a portion of the previous 6 months of  
18 May through October does not take into account the timing of a customer’s demand, and  
19 its coincidence with when APS’s distribution system peaks. Second, even though the  
20 ratchet is considered a variable charge, it acts essentially as a fixed charge because the  
21 customer must wait approximately 1 year to receive any economic benefit of reducing

---

<sup>1</sup> See APS’s LGS rates, E-32L and E-32L TOU.

<sup>2</sup> See Hutchens Direct Testimony TEP 15-0322, p. 22.

1 demand in a timely manner.

2  
3 **Q: WHY IS THE FAILURE TO ACCOUNT FOR THE TIMING OF DEMAND**  
4 **SIGNIFICANT?**

5 A: Since the demand ratchet is based on a customer's maximum demand on essentially any  
6 day or hour of the months May through October, there is little incentive for a customer to  
7 reduce demand when it matters most to APS: during peak hours. For example, if a LGS  
8 customer sets a maximum demand of 600 kW on a mild April afternoon, there is little  
9 incentive to reduce demand below 600 kW even during the hot summer months when  
10 APS's distribution system is most constrained.

11  
12 **Q: IS THERE A MORE APPROPRIATE WAY TO DETERMINE THE BILLING**  
13 **DETERMINANT FOR A CUSTOMER'S MONTHLY DEMAND?**

14 A: Yes. The first of the three criteria for determining a customer's maximum demand for  
15 LGS customers evaluates demand based on a customer's 15-minute maximum demand  
16 during the specific billing month. This measurement of maximum demand for each  
17 specific month is all that is needed and appropriate. When applied to the example above,  
18 this rate design would encourage the customer to reduce demand in the 6 month summer  
19 season as much as possible to receive the economic benefit, especially during APS's  
20 high peaking and most costly days and months.

21  
22 **Q: HOW DOES APS'S DEMAND RATCHET, AS IMPLEMENTED, ACT AS A**

1           **FIXED CHARGE?**

2    A:     Similar to a fixed charge, changes in a customer's consumption behavior have little to no  
3           impact on their bill once a ratchet is established. A customer is not rewarded for any  
4           significant demand usage reduction amounting to up to 20%, for at least a year. Under  
5           APS's LGS ratchet, a customer is not economically incentivized to reduce consumption  
6           to lower than 80% of the previous 12 month's usage that occurred in the previous  
7           months of May through October and, therefore, likely will not. As I discuss in the  
8           following section, this fixed nature of the demand billing determinant also discourages  
9           investment in demand management technologies.

10  
11          b.     **Ratchets Effectively Eliminate Storage as a Viable Option for Large**  
12          **Customers**

13   **Q:     WHICH TYPES OF CUSTOMERS ARE MOST NEGATIVELY IMPACTED BY**  
14          **DEMAND RATCHETS?**

15   A:     While demand ratchets negatively impact any customer that achieves reductions in  
16           demand or has variable month-to-month peaks, ratchets disproportionately increase bills  
17           for customers that have invested in demand resources, especially energy storage  
18           technologies. Existing long standing ratchets, such as APS's ratchet, act to dis-  
19           incentivize adoption of such technologies.

20  
21   **Q:     HOW DOES A DEMAND RATCHET IMPACT CUSTOMER INVESTMENT IN**  
22          **STORAGE TECHNOLOGIES?**

1 A: A demand ratchet significantly reduces the economic incentives associated with storage  
2 technologies. While the impact of a ratchet will vary from customer to customer based  
3 on overall consumption and load profile, a ratchet negatively impacts customers with  
4 varying monthly or seasonal usage most. For example, commercial customers with  
5 storage who reduce demand peaks to less than 80% of the customer's May-October  
6 summer peak will not realize savings for the following 12 months due to the ratchet.  
7 This issue directly and negatively impacts the return on investment in storage  
8 technologies.

9 In the instance of a solar plus storage commercial customer, APS's methodology  
10 for determining large billing demand based on annual rather than monthly maximum  
11 demand does not appropriately capture the summer reductions in demand. Instead, under  
12 the existing and proposed ratchets, these customers would be billed based on their high  
13 winter demand, despite the fact that they reduced demand during the summer months  
14 when APS's system is most stressed.  
15

16 **Q: DO YOU HAVE ADDITIONAL SUPPORT FOR THE PROPOSITION THAT**  
17 **RATCHETS EFFECTIVELY ELIMINATE STORAGE AS A VIABLE OPTION**  
18 **FOR LARGE CUSTOMERS?**

19 A: Yes. In the recent TEP rate case, RUCO witness Lon Huber testified that year-round  
20 demand ratchets like those proposed by TEP were a deterrent to the adoption of battery  
21 storage technology.<sup>3</sup> Specifically, Mr. Huber testified that, "in terms of like a 24-hour

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<sup>3</sup> Transcript of Testimony from Phase I Hearing in Docket No. E-01933A-15-0322, Huber Vol. VII at 1575:12-20.

1 demand charge with a full like ratchet, I mean that would kill storage right out of the  
2 gate.”<sup>4</sup> “Killing storage” is obviously not an acceptable outcome for the Commission or  
3 the public.  
4

5 **Q: ARE THERE ADDITIONAL CONCERNS REGARDING THE IMPACT OF A**  
6 **RATCHET ON STORAGE?**

7 A: Yes. In addition to impacts on economics, customers that do choose to adopt storage  
8 will not be incentivized to use their storage system on a regular basis other than to  
9 reduce their demand to approximately 80% of the highest load of the year. Storage has  
10 the considerable added benefit of reducing demand and strain on the grid, so a rate  
11 design that promotes not only adoption, but consistent use of customer storage reduces  
12 overall system costs, thereby providing benefit to all APS ratepayers.  
13

14 **Q: WHAT IS THE LIKELY IMPACT ON THE ADOPTION OF STORAGE?**

15 A: Customers are less likely to invest in storage if they cannot realize the economic  
16 benefits. APS’s existing ratchet is not conducive to the adoption of storage, and  
17 adoption will be further thwarted with the continuation of a ratchet in the LGS rate.  
18

19 **Q: IS APS’S DEMAND RATCHET CONSISTENT WITH COST-BASED**  
20 **RATEMAKING?**

21 A: No. APS’s ratchet discourages customers from investing in technologies that help to

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<sup>4</sup> Id.

1 reduce demand on the distribution system during peak hours. Cost-based ratemaking  
2 should send price signals to customers reflective of the costs incurred by APS during the  
3 time that demand occurs. Charging customers that reduce demand during these peak  
4 hours based, at a minimum, on their highest demand in other, less costly months, is  
5 outdated, punitive, and clearly not cost-based. This rate design directly contradicts any  
6 objective to design innovative, cost-based rates.

7 **Q: WHAT ARE THE BENEFITS THAT STORAGE PROVIDES TO THE**  
8 **DISTRIBUTION SYSTEM?**

9 A: Storage provides several benefits to the distribution system that have the effect of  
10 reducing costs for all ratepayers. In addition to providing customers the ability to  
11 manage their energy usage and costs, solar PV and storage with smart inverters, provide  
12 the following benefits:

13 Avoided energy line losses;  
14 Avoided generation capacity;  
15 Avoided transmission capacity;  
16 Avoided distribution capacity;  
17 Ancillary services;  
18 Reactive power and voltage support;  
19 Increased conservation voltage reduction;  
20 Extended life of distribution equipment;  
21 Increased resiliency and reliability; and  
22 Reduced market clearing price of electricity<sup>5</sup>

23 **Q: IS THE COMPANY'S PROPOSAL CONSISTENT WITH ITS EFFORTS TO**  
24 **INCREASE ADOPTION OF ENERGY STORAGE AND ENERGY**  
25 **EFFICIENCY?**

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<sup>5</sup> [http://www.solarcity.com/sites/default/files/SolarCity\\_Distributed\\_Grid-021016.pdf](http://www.solarcity.com/sites/default/files/SolarCity_Distributed_Grid-021016.pdf)

1 A: No. Utilities such as APS should propose rate designs that provide the economic  
2 incentives for the development of cost-effective energy technologies, such as storage,  
3 and encourage the implementation of cost-effective energy efficiency. The existing and  
4 proposed ratchet rate design directly contradicts these objectives.

5  
6 **Q: IS THERE RECENT COMMISSION PRECEDENT TO REMOVE OR**  
7 **REDESIGN DEMAND RATCHETS?**

8 A: Yes. In September 2016, the Massachusetts Department of Public Utilities (“MDPU”)  
9 rejected Massachusetts Electric Company’s request to create a new ratchet, finding that  
10 demand ratchets:

- 11 • Provide no incentive to reduce demand beyond the class or system peak and little  
12 incentive to reduce kWh use;
- 13 • Distort price signals to customers and discourage customers from investing in  
14 load control equipment that would otherwise be cost-effective;
- 15 • Unfairly impose higher costs on certain customers.<sup>6</sup>

16  
17 The Arizona Corporation Commission has also recently considered ratchets in Phase 1 of  
18 the UniSource Electric rate case, and, similar to MDPU, found ratchets to be a sub-  
19 optimal rate design. Specifically, the ACC concluded that “[d]emand ratchets may be  
20 characterized as a substitute for rates that actually reflect cost-causation.” The ACC  
21 directed UNSE in its next rate case to “evaluate methods of revenue recovery that do not

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<sup>6</sup> D.P.U. 15-155, p. 456



1 involve ratchets....”<sup>7</sup>

2  
3 **Q: WHAT DO YOU RECOMMEND WITH REGARD TO APS’S DEMAND**  
4 **RATCHET?**

5 A: I recommend that the Commission reform APS’s existing tariff to assess monthly  
6 demand based on the maximum monthly 15-minute interval demand, and reject APS’s  
7 proposal to implement a demand ratchet on the proposed LGS tariff. Should the energy  
8 and demand rates on such a rate option need to be adjusted to ensure adequate cost-  
9 recovery in the absence of the ratchet, I recommend APS be directed place any  
10 additional costs in either the energy or demand rate, rather than the fixed charge, to  
11 ensure that customers receive as much economic incentive as possible to respond to  
12 these rates. If the Commission is unwilling to get rid of the APS ratchets entirely, I  
13 propose that APS be directed to provide an optional non-ratchet LGS tariff that allows  
14 customers in the rate class seeking to install storage the opportunity to do so.

15  
16  
17 **X. CONCLUSION**

18 **Q: DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

19 A: Yes, it does.

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<sup>7</sup> Decision No. 75697, p. 86.